



Water Solutions, Inc.

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Transmittal

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Re:	J.H. Baxter & Co.		

Attachments For Review Please Comment ☒ For Your Use

Number of Copies	Description
1	Revised Final Workplan – Arlington Baxter

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Revised Final Workplan

Installation of Oxygen Infusers and Rehabilitation of Recirculation Trench



Former J.H. Baxter & Co. Wood Treating Facility
Arlington, Washington

Prepared for
U.S. Environmental Protection Agency
Region 10
1200 Sixth Avenue
Seattle, WA 98101

Submitted by
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June 2015

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1. Introduction

The J.H. Baxter Team, consisting of J.H. Baxter & Co. (Baxter) and GSI Water Solutions, Inc. (GSI), has prepared this *Workplan for the Installation of Oxygen Infusers and Rehabilitation of the Recirculation Trench* (Workplan) for the Stella-Jones (formerly Baxter) Arlington, Washington, wood treating facility (Arlington facility, facility, or Site) located at 6520 188th Street NE (Figure 1). This workplan has been prepared for the U.S. Environmental Protection Agency (EPA) to document proposed improvements to the ongoing Remedial Action Pilot Study at the Arlington facility.

The Remedial Action Pilot Study is considered to be part of the ongoing Corrective Measures Study (CMS), which is being implemented pursuant to Paragraph 53 of the EPA Administrative Order on Consent (AOC) dated April 30, 2001 (EPA, 2001). CMS-related activities were conducted consistent with guidance provided by EPA in the Resource Conservation and Recovery Act (RCRA) Corrective Action Plan (Final), dated May 1994 (EPA, 1994), Corrective Actions Advance Notice of Proposed Rulemaking (EPA, 1996), and the AOC.

This workplan proposes to rehabilitate the recirculation trench and to install iSOC (in situ submerged oxygen curtain technology) gas infusion units into three existing wells at the Arlington facility to augment the effectiveness of the Remedial Action Pilot Study.

2. Remedial Action Pilot Study

The Remedial Action Pilot Study was designed to enhance in situ bioremediation and passive recovery of light non-aqueous phase liquid (LNAPL). This includes an extraction well network, infiltration trench, recovery wells, and monitoring well network (Figure 2). The pilot study installation was completed in January 2008.

The purpose of the enhanced in situ bioremediation (the recirculation system) is to increase groundwater pH and dissolved oxygen levels for favorable conditions for biodegradation of pentachlorophenol (PCP). The recirculation system uses seven extraction wells to remove affected groundwater, which is pumped into an infiltration trench upgradient of the extraction wells. The infiltration trench is composed of crushed limestone, which increases the pH of the affected groundwater when contact is made. Additionally, LNAPL is passively recovered in five recovery wells with sorbent socks.

2.1 Current Operations

The only extraction wells operating at the beginning of the fourth quarter in 2014 were EW-2 and EW-4. All of the extraction wells were turned on at the beginning of the fourth quarter 2014, but each extraction well, except EW-2 and EW-4, was triggered almost immediately to shut down because of its high-water-level alarm (Baxter, 2015).

GSI conducted a Site visit in April, 2015 to assess the wells and recirculation system. The wells, pumps and associated piping appears to be in good condition. The recirculation

- vii. The system will be restarted following the completion of the boring installations, initially with the operation of extraction wells EW-2 and EW-4. A troubleshooting period with the gradual inclusion of more extraction wells as the infiltration trench's new capacity is assessed.
- 4. **Monitoring.** Following completion of the proposed work, subsequent site visits will be planned to monitor the effectiveness of the rehabilitation trench modifications and the installed iSOC units. The number and frequency of site visits will depend upon observed site conditions.
- 5. **Reporting.** A short report documenting the work conducted will be prepared and included as part of the third quarter monitoring report.

4. Schedule

Upon approval of the proposed workplan, the Baxter team will begin the process of mobilizing necessary resources and selecting contractors. The proposed work is anticipated to be conducted in July or August, 2015. The duration of the work is expected to take approximately one to two weeks.

5. References

Baxter. 2007. Remedial Action Pilot Study Work Plan. Prepared by the J.H. Baxter Project Team for EPA Region 10. September 2007.

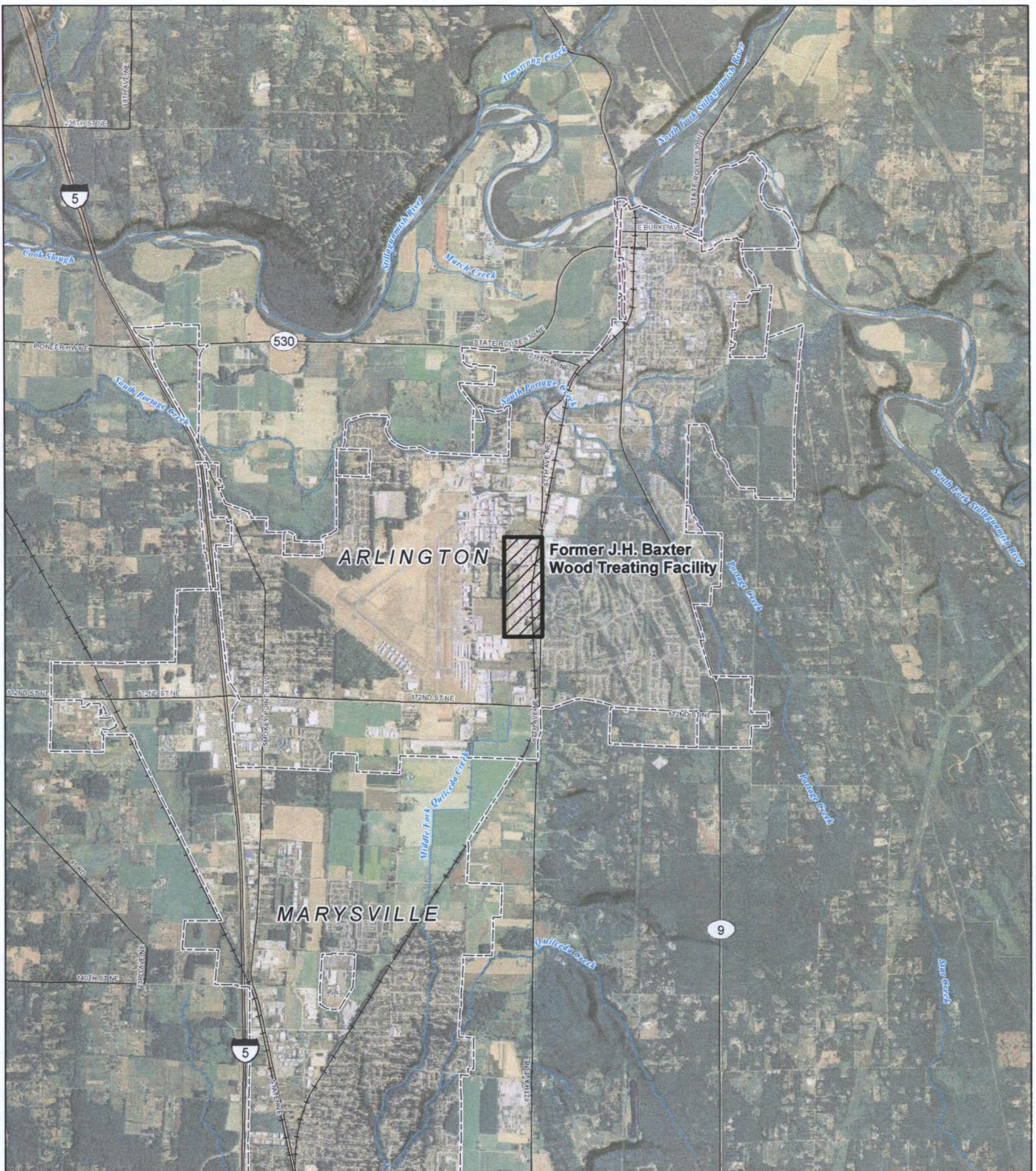
Baxter. 2011. Corrective Measures Study, Revision 2. Prepared by the J.H. Baxter Team for EPA Region 10. March 2011.

Baxter. 2015. Fourth Quarter 2014 Operations and Monitoring Report – Remedial Action Pilot Study. Prepared by the J.H. Baxter Project Team for EPA Region 10. March 2015.

EPA. 1994. Resource Conservation and Recovery Act (RCRA) Corrective Action Plan (Final). OSWER Directive 9902.3-2A. May 1994.

EPA. 1996. Federal register, Vol. 61, No. 85, May 1, p. 19,432.

EPA. 2001. Administrative Order of Consent, U.S. EPA, Region 10 Docket No. RCRA-10-2001-0086. U.S. Environmental Protection Agency. April 30.



LEGEND

- Cities
- Railroads
- Major Roads
- Watercourses

MAP NOTES:

Date: May 13, 2015
Data Sources: Air photo taken on July 15, 2013 by the USDA

FIGURE 1

Site Vicinity Map

Installation of Oxygen Infusers and
Rehabilitation of Recirculation Trench
Former J.H. Baxter Wood Treating Facility
Arlington, Washington

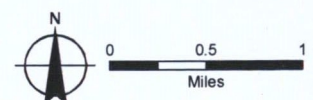




FIGURE 2

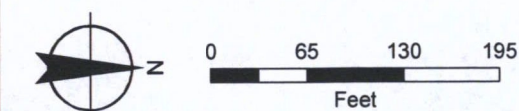
iSOC Installation Locations

Installation of Oxygen Infusers and
Rehabilitation of Recirculation Trench

Former J.H. Baxter Wood Treating Facility
Arlington, Washington

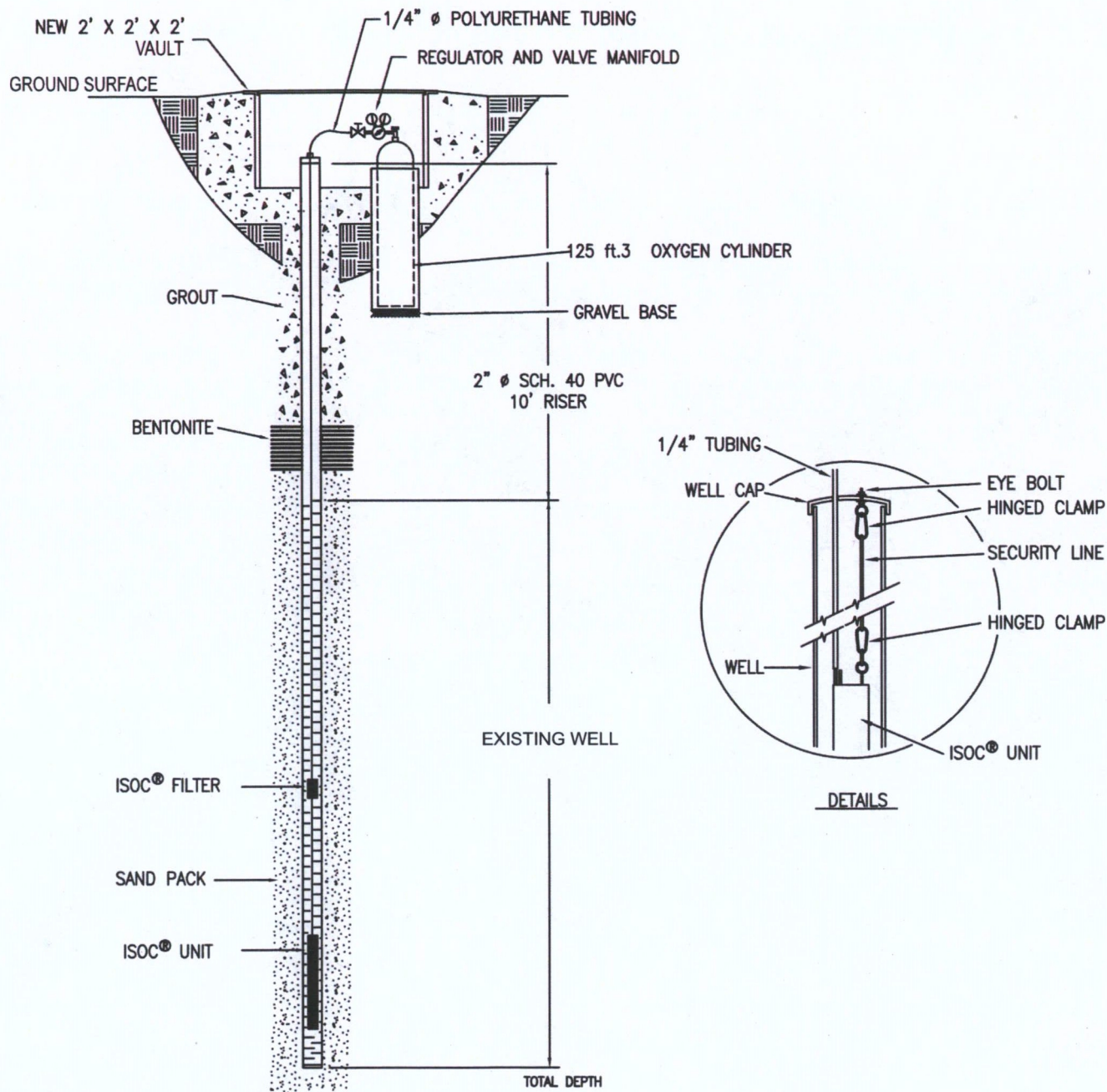
LEGEND

- + iSOC Deployment Well
- Shallow/Intermediate Monitoring Well
- Deep Monitoring Well
- Extraction Well
- Infiltration Trench



MAP NOTES:
Date: May 13, 2015
Data Sources: AMEC, ESRI, Air photo taken on
July 9, 2010 by Microsoft





NOTE:

Not typical of existing wells.
Deployment depth set to field conditions.

FIGURE 3

iSOC Well Details

Installation of Oxygen Infusers and
Rehabilitation of Recirculation Trench
Former J.H. Baxter Wood Treating Facility
Arlington, Washington





FIGURE 4

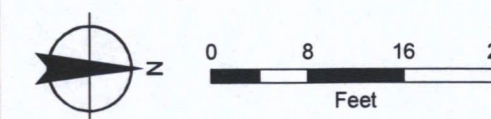
Boring Installation

Installation of Oxygen Infusers and
Rehabilitation of Recirculation Trench

Former J.H. Baxter Wood Treating Facility
Arlington, Washington

LEGEND

- ⊙ Boring
- Standpipe
- Monitoring Well
- Recovery Well
- Extraction Well
- ▬ Infiltration Trench



MAP NOTES:
Date: May 13, 2015
Data Sources: AMEC, ESRI, Air photo taken on
July 9, 2010 by Microsoft



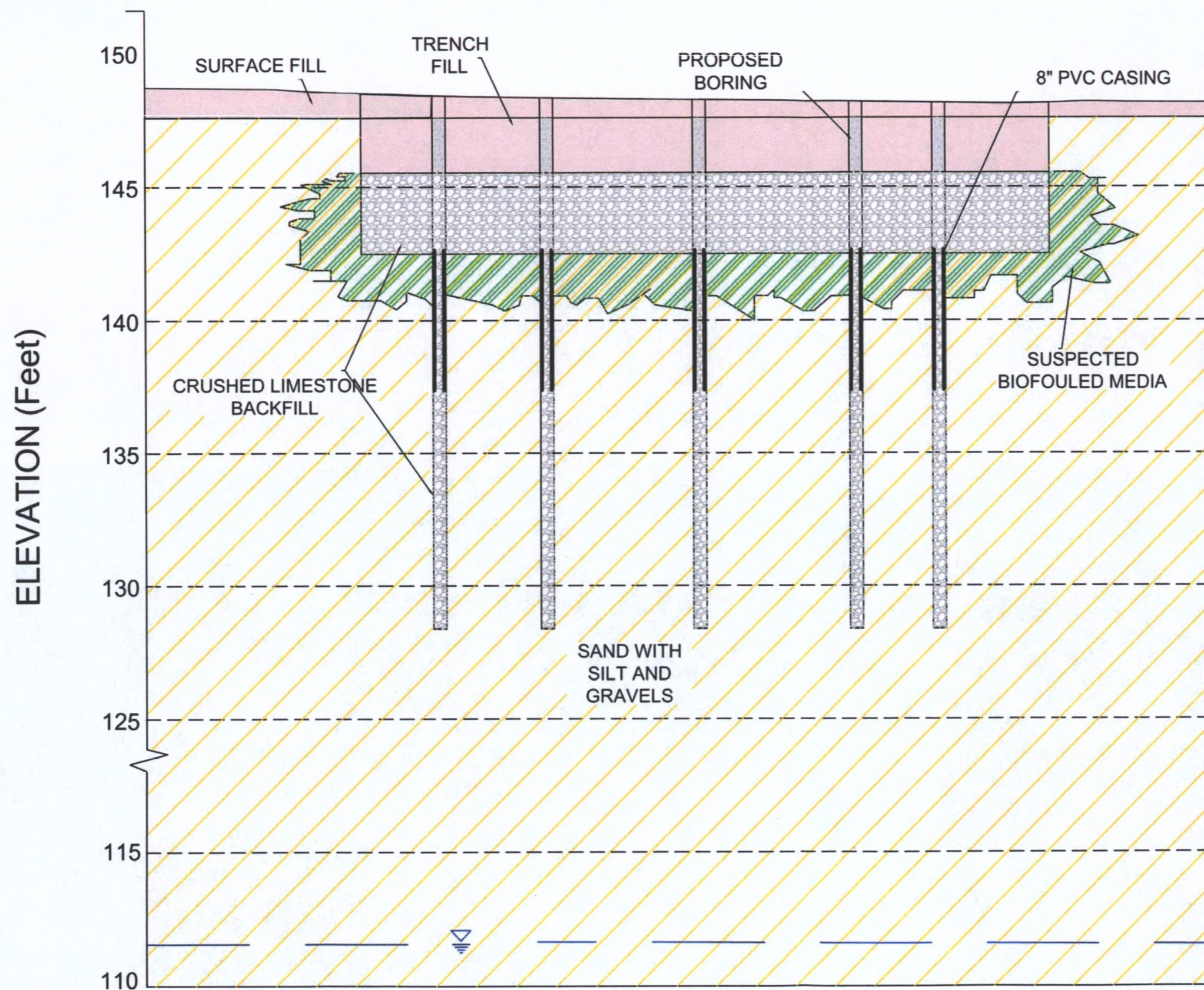


FIGURE 5
INFILTRATION TRENCH CROSS SECTION

JUNE, 2015
J.H. Baxter Wood Treating Facility
Arlington, Washington

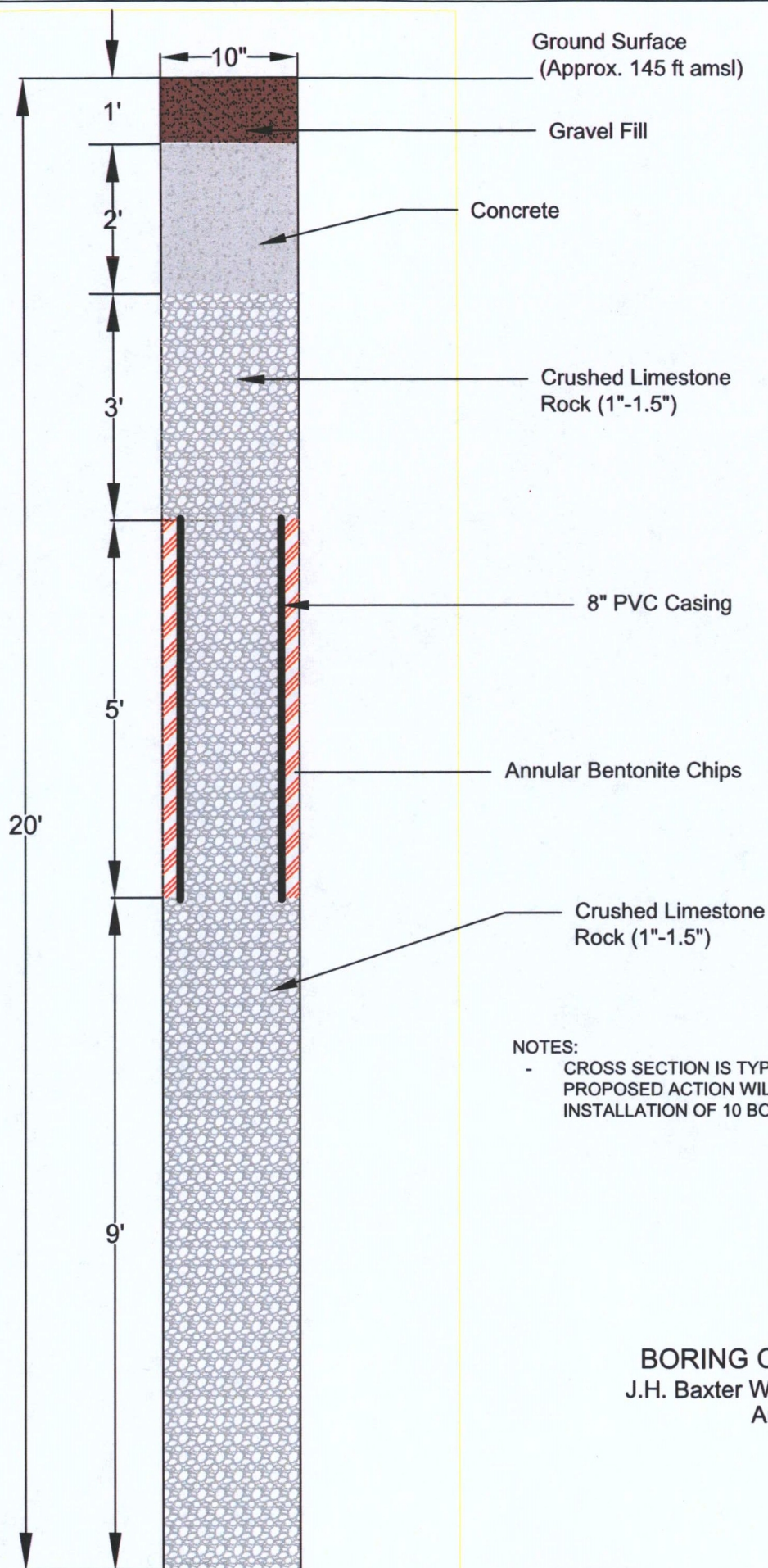


FIGURE 6
BORING CROSS SECTION
 J.H. Baxter Wood Treating Facility
 Arlington, Washington
 JUNE, 2015